

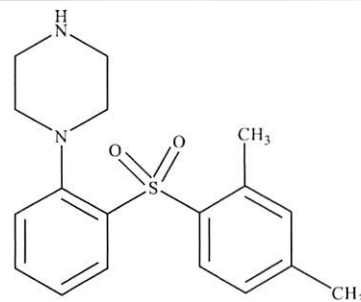
## Certificate of Analysis

Certificate No.: 20230911018



Date: September 11, 2023

Retest date: September 11, 2026

<b>Compound Name:</b> Vortioxetine Impurity 25	
<b>Synonyms:</b>	1-(2-((2,4-dimethylphenyl)sulfonyl)phenyl)piperazine
<b>TLC Catalogue Number:</b>	V-043027
<b>CAS Number:</b>	1639263-80-1
<b>Molecular Weight:</b>	330.45
<b>Molecular Formula:</b>	C <sub>18</sub> H <sub>22</sub> N <sub>2</sub> O <sub>2</sub> S
<b>Source:</b>	TLC Pharmaceutical Standards
<b>Source Lot No.:</b>	2490-034A6
<b>Storage Conditions:</b>	Store at 2-8 °C
<b>Solubility:</b>	Methanol, DMSO



Test Description	Specifications	Results
<b>Visual Description</b>	White to off-white solid	<b>Conforms</b>
<b>Identification</b>		
IR	Conforms to structure	<b>Conforms</b>
MS	Conforms to structure	<b>Conforms</b>
<sup>1</sup> H NMR	Conforms to structure	<b>Conforms</b>
<b>Purity (HPLC)</b>	Not less than 95.0%	<b>100.0%</b>
<b>Impurity (HPLC)</b>	N/A	
<b>Water Content (KF)</b>	N/A	<b>0.2%</b>
<b>Residue (TGA at 800 °C)</b>	N/A	<b>0.2%</b>
<b>Residual Solvents (NMR)</b>	0.1% acetonitrile	
<b>Assay (%)</b>	Not less than 90.0%	<b>99.5%</b>
<b>Recommendation:</b>	<b>Release.</b>	

Name	Department	Signature	Date
Reviewed and approved by:	Quality Control		09 / 12 / 2023
Approved by:	Quality Assurance		09 / 12 / 2023

**Attachments:** HPLC, IR, MS, NMR and TGA spectra.